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LETTER AND U S NAVY RESPONSE TO REGULATOR COMMENTS TO DRAFT PROPOSED REMEDIAL ACTION PLAN SITE 69 OPERABLE UNIT 14 (OU14) MCB CAMP LEJEUNE NC
7/10/2012
CH2M HILL

Response to Comments
Draft Proposed Remedial Action Plan
Site 69 Operable Unit No. 14
Marine Corps Installations East-Marine Corps Base Camp Lejeune, North Carolina

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Introduction

The purpose of this document is to address comments on the Draft Proposed Remedial Action Plan (PRAP) for Site 69 Operable Unit No. 14 located at MCIEAST-MCB CAMLEJ. United States Environmental Protection Agency (EPA) Region 4 and North Carolina Department of Natural Resources (NCDENR) provided the comments listed below. The responses to the comments are provided in bold.

NCDENR Comments (Dated May 31, 2012)

1. The Last paragraph on page 5 states that "buried Waste at the site suggest that soil within the waste disposal area is contaminated." This may be true, but the greatest indication that soil is contaminated in the burial area is the fact that groundwater in the area of MW-GW15 installed through the waste material, is contaminated with COCs that are at least two to three orders of magnitude greater than the groundwater in all the other monitoring wells in the area. Please make appropriate corrections or additions.

The paragraph has been revised to state: "As a result, empirical data are not available for the soil or waste material present in this area, but the concentrations of COCs in groundwater samples collected from IR69-GW15IW, installed through the waste material, are two to three orders of magnitude greater than the groundwater in all surrounding monitoring wells, and the continued presence of buried waste at the site suggests that soil within the waste disposal area is contaminated, as illustrated on Figure 3."

2. Table 8- Groundwater, gives Alternative 2, Monitored Natural Attenuation (MNA) a "high ranking" for Short Term Effectiveness. As you know MNA is only effective in the long term and "would likely exhibit the least short term effectiveness" as stated in the text on page 13. Please make appropriate corrections in Table 8 – Groundwater.

Based on the Short-Term Effectiveness Criteria, MNA and LUCs meet the "high ranking" for protection of short term risks to the community and workers during implementation and limiting potential adverse affects to the environment. MNA and LUCs would meet the "low ranking" for time required to meet the RAOs. Based on how MNA and LUCs compare to these four criteria, the ranking was revised to "moderate" and the text adjusted appropriately.

3. The first paragraph at the top of page 16 doesn't specifically mention fencing controls. We have not discussed the existing fence. The NC Superfund Section would recommend that the fence remain in place or be replaced following cap installation. The fence is an important control measure since hunting and other range activities are ongoing in the Site 69 area.

The following sentence has been added to the paragraph: "In addition, the existing 6-foot-high chain-link fence will remain in place or be replaced following cap installation."

4. The last sentence on page 16, states that the preferred alternative satisfies the following requirements, including number 5, "satisfaction of the preference for treatment as a principal element." Monitored Natural Attenuation (MNA) is not considered an active treatment remedy by the EPA or the State. Please remove requirement 5 from this sentence.

Requirement 5, the preference for treatment as a principal element, is a statutory requirement. This sentence and the one prior to it are per EPA Guidance (July 1999) and acknowledge that the alternatives evaluated and preferred for the site provide the best balance of tradeoffs based on the 5 statutory requirements listed. To address that this preference is not met, the text has been revised to state "5) satisfaction of the preference for treatment as a principal element, or provide and explanation in the ROD as to why this preference was not met" per EPA guidance *Rules of Thumb for Superfund Remedy Selection* (August 1997).

EPA Comments (Dated June 13, 2012)

General Comments

1. Overall most of the content in this Proposed Remedial Action Plan [hereinafter Proposed Plan or PRAP] is useful and provides information required by the NCP or EPA guidance. However, there are some areas that are not entirely consistent with the EPA guidance or the NCP with respect to addressing principal threat wastes (PTW). [See specific Comments below]

Comment noted and will be addressed by the specific comments below.

2. Containment remedy is appropriate for most historic unregulated municipal or solid waste landfills; however if there is source material that is contaminating groundwater then hydraulic isolation that limits infiltration through the buried wastes/soil is often necessary. Accordingly, certain RCRA Subtitle C landfill requirements for a final cover and post-closure care are considered relevant and appropriate and should be noted in the ARARs discussion portion of the PRAP. Also, when PTW is present, the EPA expects to use treatment to the maximum extent practicable. [See specific Comments below]

The text was revised to emphasize the use of the soil cap to reduce infiltration. The text also emphasizes the impracticality of active treatment due to the high risk nature of addressing the chemical agent. The RCRA Subtitle C landfill requirements are included in the ARARs for the FS and ROD, the text of the PRAP was revised to mention this requirement.

Specific Comments

1. **Site Description and Background, Page 3** – The text states "A second documented source ...), however, there is not a reference to the source. Cite the documented source(s) within the text.

The source was detailed in the SI and this was clarified in the text.

2. **Nature and Extent of Contamination, Soil, Page 5 –** Provide more details on the nature of the contaminants known or thought to be present in the soils and buried waste similar to that in Section 2.1. Add the following sentence to the end of the first paragraph: "Depending on the concentrations of hazardous constituents in the soil and buried wastes, such soil and waste could be considered RCRA hazardous waste or TSCA PCB waste if removed from the landfill."

The recommended sentence above and the following text was added to the Nature and Extent of Contamination, Soil section to provide more details about the nature of contaminants: "Based on historical documentation and groundwater analytical data, the waste disposal area likely contains buried drums of PCBs, chlorinated solvents, and pesticides and potentially contains drums of CA. The soil within the waste disposal area is likely contaminated with these constituents as a result of drum leakage."

3. **Principal Threats, 1st paragraph, Page 7 –** As described in the EPA's *Guide to Principal Threat and Low-level Threat Waste* (EPA OSWER Pub.9380.3-06FS, Nov. 1991), liquids (e.g., in buried drums) NAPL and/or high-

concentration of toxic compounds in soils are considered PTW. Please add a sentence to reflect that above reference guidance and the examples of source materials that constitute PTW several of which are present in the Site 69 landfill.

Sentence was added to the first paragraph of the Principal Threat section as recommended.

4. **Principal Threats, 2nd paragraph, Page 7 –** Revise the first sentence to specify that CA is PTW because it is highly toxic, and potentially fatal should exposure occur. Also, relocate the next three sentences discussing existing LUCS that prevent exposure to buried wastes and contamination into Section on the Site Characteristics. These LUCs are not relevant for whether sources are PTW. Toxicity is determined by the inherent characteristic of the compounds and should exposure occur. Lastly, as noted in the General Comment #2 above, although containment is generally a presumptive remedy for municipal landfills, under the NCP at 40 CFR § 300.430(a)(iii)(A), EPA expects to use treatment to address the principal threats posed by a site, wherever practicable. Therefore, revise the text to indicate that for wastes other than PTW, engineered remedies including those that provide containment (including hydraulic isolation) of the buried wastes is generally expected by EPA. [Reference the NCP at 40 CFR 300.430(a)(1)(iii)]

The first sentence was revised as follows: "Additionally, the waste is in place and includes the potential presence of CA. CA is considered a principal threat waste because it is highly toxic and potentially fatal should exposure occur."

The next three sentences discussing LUCs were moved to the Site Characteristics section.

Paragraph #2 was revised as follows: "Additionally, the waste is in place and includes the potential presence of CA. CA is considered a principal threat waste because it is highly toxic and potentially fatal should exposure occur. In 1993, the EPA established source containment as the presumptive remedy for municipal landfills regulated under CERCLA. EPA guidance developed in 1996 indicated that military landfills regulated under CERCLA should also consider the source containment (including hydraulic isolation) presumptive remedy approach (EPA, 1996). However, as detailed in the NCP at 40 CFR 300.430(a)(1)(iii), EPA expects to use active treatment to address the principal waste threats posed by a site, wherever practicable."

5. **Scope and Role of Response *Actions*, Page 8 –** Provide description of the 2000 IROD remedy and how the final action taken under this ROD will overlap and/or supersede that interim remedy with respect to soil contamination and LUCs. Also, should indicate that the Treatability Study was completed (include the area and contaminates addressed) and it was not effective at treating the source material, therefore additional action is necessary.

The following text was included in the Scope and Role of Response Actions Section: "In June 2000, an IROD was issued to address the human health and ecological risks posed by VOCs in groundwater and safety risks from the potential presence of buried CA. The IROD incorporated a site-specific Land Use Control Implementation Plan (LUCIP) for Site 69 in accordance with the Memorandum of Agreement dated May 24, 1999, known as the LUC Assurance Plan. An IROD, rather than a final ROD, was executed because of the reported presence of CA at the site. Based on discussions with the Design Center for Ordnance and Explosives Team of the U.S. Army Corps of Engineers (USACE), the unearthing of CA would require indefinite storage somewhere on-Base pending final disposition. At the time of the IROD, disposal alternatives for such materials were not readily available.

The final ROD for Site 69 will incorporate and update the LUCs specified in the IROD and document site closure for the UXO-2 area."

6. **Threshold Criteria, Overall protection of HH&E Soil, Page 12 –** As noted above, capping is the presumptive remedy for most unregulated solid waste or municipal landfills; except that when PTW is present, EPA expects treatment or removal of such source materials to the maximum extent practicable. Also, if source material is

resulting in groundwater contamination then hydraulic isolation (impermeable cover) is needed for any containment remedy. Revise text accordingly.

[Included in the revised text should be statements about the impermeable cover part of the remedy and the impacts of removing CA without a disposal option.]

The following text was added to the Threshold Criteria, Overall protection of HH&E Soil Section: "Capping is the presumptive remedy for landfill sites, except that when principal threat wastes are present the EPA expects treatment or removal of such source materials to the maximum extent possible. Alternative 3 (Capping) does not meet the EPA's preference for treatment or removal but does provide an impermeable cover which provides hydraulic isolation to reduce further migration of the principal threat waste. Hydraulic isolation, as part of a containment remedy is also an acceptable alternative to the EPA. While Alternative 4 (Removal) meets EPA's preference for the removal of the principal threat waste, the risk associated with the removal and disposal of CA is high due to the lethal toxicity of these contaminants."

7. **Compliance with ARARs, Page 12 –** Add few sentences explaining ARARs for each of the described remedial alternatives as provided in the Final FS. Indicate that the NCDENR 2L and EPA SDWA MCLs are chemical-specific ARARs that were used to establish groundwater cleanup levels. Also, that certain RCRA Subtitle C landfill closure and post-closure care requirements are relevant appropriate for the capping alternative in order to provide hydraulic isolation of the source materials.

Text for the Compliance with ARARs, Soil was revised to the following: "Soil Alternative 3 (Capping) and Alternative 4 (Removal) are expected to meet ARARs. No Action (Alternative 1) and LUCs (Alternative 2) would not meet the location-specific ARARs related to sensitive ecosystems.

Location- and action-specific ARARs regarding land-disturbing activities and waste disposal during capping (Alternative 3) or removal activities (Alternative 4) would be complied with during implementation of each remedy. Alternative 3 (Capping) would also comply with the action-specific ARARs for RCRA Subtitle C landfill closure and post-closure care requirements for which are required to provide hydraulic isolation of the source materials to address the principal threat wastes in soil."

Text for the Compliance with ARARs, Groundwater was revised to the following: "All groundwater alternatives, except the No Action alternative, are expected to meet ARARs. Action-specific ARARs specific to Alternative 3 (PRB), Alternative 4 (ERD), and Alternative 5 (ISCO) regarding land-disturbing activities and waste handling would be complied with during the implementation of the alternative. LTM will be conducted, as part of all alternatives except No Action, to evaluate compliance with the location-specific ARARs regarding discharge of groundwater to wetlands or water bodies. LUCs will be implemented to prevent exposure to groundwater until such time that the chemical-specific ARARs, including NCGWQS and federal Maximum Contaminant Levels (MCLs), can be achieved."

8. **Reduction of TMV through Treatment**, **Page 13 –** Include brief introductory sentence that specifies the CERCLA Section 121(b) (1) preference and NCP requirement to treat PTW and that the ROD must include an explanation why treatment was not utilized to the maximum extent practicable. [Ref. 40 CFR 300.430(f)(1)(ii)(E) and 300.430(f)(5)(ii)(F)]. Also, revise the first sentence to indicate that "Alternative 3 [Capping] does not include treatment of soil or wastes that are considered PTW and does not reduce toxicity or volume." Revise last sentence to indicate that Alternative 4 would remove the PTW which reduces toxicity and volume as well as the mobility. Indicate that a Treatability Study was performed to address some source material but that it was not entirely effective, which may indicate that treatment (at least that technology) is not practicable for some of the PTW.

The following introductory sentence was added to the Reduction of TMV through Treatment Section: "CERCLA Section 121(b) (1) and NCP requirement as referenced at 40 CFR 300.430(f)(1)(ii)(E) and 300.430(f)(5)(ii)(F) indicate that principal threat wastes should be treated to the maximum extent practical. Based on the unique nature of the chemical agent potentially present in the waste disposal area, treatment

is not a feasible and none of the remedial alternatives include treatment. The ROD will include a detailed explanation of why treatment was not utilized to address the principal threat waste."

First and last sentences were revised as recommended.

The following sentence was added to the Groundwater Section: "Previous treatability studies, as detailed in Table 1, were not effective in treating the source are, which may indicate that treatment is not practicable for treating the principal threat wastes."

9. **Preferred Alternative, Page 15 –** As noted above, containment remedy may be appropriate for certain landfills (DoD municipal or solid waste landfills) but EPA expects treatment to the maximum extent practical when there is presence of PTW within the landfill. Revise text to better clarify this important distinction. Also, revise to indicate that military solid waste landfills "addressed" as opposed to 'regulated' under CERCLA. Revise sentence to indicate that a multilayer cap with an impermeable layer meeting relevant RCRA Subtitle C landfill cover requirements will be installed to provide hydraulic isolation of the buried wastes and soils that are source materials for contaminating groundwater.

The paragraphs were revised/added as follows: "While capping does not meet the EPA's preference for active treatment of principal threat wastes, it does provide containment, an EPA acceptable alternative to reduce the mobility of the principal threat wastes. The high risk associated with removal and transportation of CA and the limited acceptable disposal facilities for CA waste make the EPA preference for removal of the principal waste threat an impractical alternative at this time.

A multilayer cap with an impermeable layer meeting relevant RCRA Subtitle C landfill cover requirements will be installed to provide hydraulic isolation of the buried wastes and soils that are source materials for contaminating groundwater. The cap will be constructed over the southern and eastern burial trenches to cover a total area of approximately 190,000 square feet, as indicated on Figure 4."

10. **Preferred Alternative, MNA Page 15 –** Consistent with EPA guidance on use of MNA as a remedial component, the Navy must specify that based upon multiple lines of evidence that it expects that natural processes will attain cleanup levels within a reasonable timeframe and should indicate the number of years. *[Use the language included in the FS that identified plume stabilization and SW discharge will meet the NCSWQS.]*

The following paragraph was added: "In addition to the very favorable conditions for reductive dechlorination within the plume area, and elevated populations of dehalogenating bacteria; groundwater modeling predicts that each plume will remain relatively stable and will remain below the NCSWQS (2.4 µg/L) at the discharge point to the New River."

11. **Preferred Alternative, bulleted text, Page 16 –** Revise as follows: Prevent potential exposure to contaminated subsurface soil and buried wastes (some of which are considered principal threat wastes)." Also, revise third bullet as follows: "Maintain the integrity of any existing or future monitoring or remediation system at the site (including but not limited to groundwater monitoring wells, fences, signs and landfill cover)."

Bullet 1 was revised to the following: "Capping to prevent potential exposure to contaminated subsurface soil and buried wastes (some of which are considered principal threat wastes) and provide a barrier for potential receptors and infiltration."

Revising Bullet 3 as suggested would result in LUCs not being discussed as part of the remedy, alternatively Bullet 4 was added as follows: "Inspections and maintenance to maintain the integrity of any existing or future monitoring or remediation system at the site (including but not limited to groundwater monitoring wells, fences, signs, and landfill cover)"

12. **Preferred Alternative, 3rd paragraph, Page 16 –** The Preferred Alternative is not utilizing alternative treatment technologies to the maximum extent practicable and therefore the text should be revised accordingly.

Instead, the Navy must explain in the ROD (and preferably in this PRAP) why treatment was not practicable. [See above comments]

The following text was added to the Preferred Alternative Section: "While capping does not meet the EPA's preference for active treatment of principal threat wastes, it does provide containment, an EPA acceptable alternative to reduce the mobility. The high risk associated with removal and transportation of CA and the absence of acceptable disposal facilities for CA waste make the EPA preference for removal of the principal threat waste an impractical alternative at this time."

13. **Preferred Alternative, last paragraph, Page 16 –** Consider subsection entitled Five-Year Review so that the reader has a clear understanding that this activity is performed separately from the implemented remedy.

Preferred Alternative and Five-Year Review subsection headers were added to the Preferred Alternative Section.

14. **Community Participation –** Revise to update the target calendar dates and indicate that the Navy has prepared the PRAP in view of the public participation requirements specified in the NCP at 40 CFR 300.430 (f)(3) and 40 CFR 300.515(e).

The text was revised as recommended and the dates for the public meeting and comment period were updated.